

# HOWTOONS Das Bottle

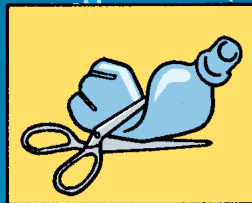
## MATERIALS:



REDUCE FRICTION FOR THE DRIVE TRAIN.

USE A SPACER BETWEEN THE PROP AND THE CAP. TRY BEADS, ROUNDED CAPS, OR BEARINGS.

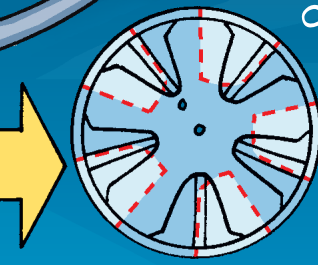
## MAKING THE PROPELLER:



CRUSH. THEN CUT A BOTTLE IN HALF.

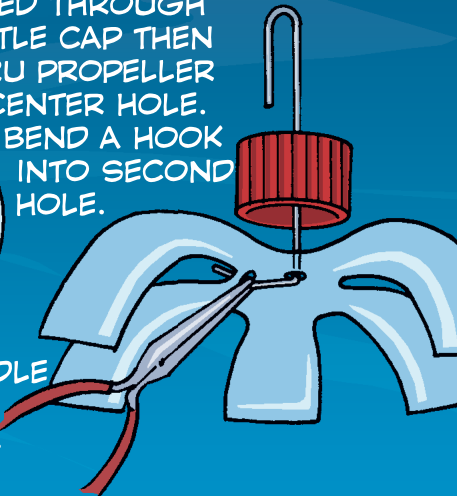


TRIM AROUND THE BOTTOM.

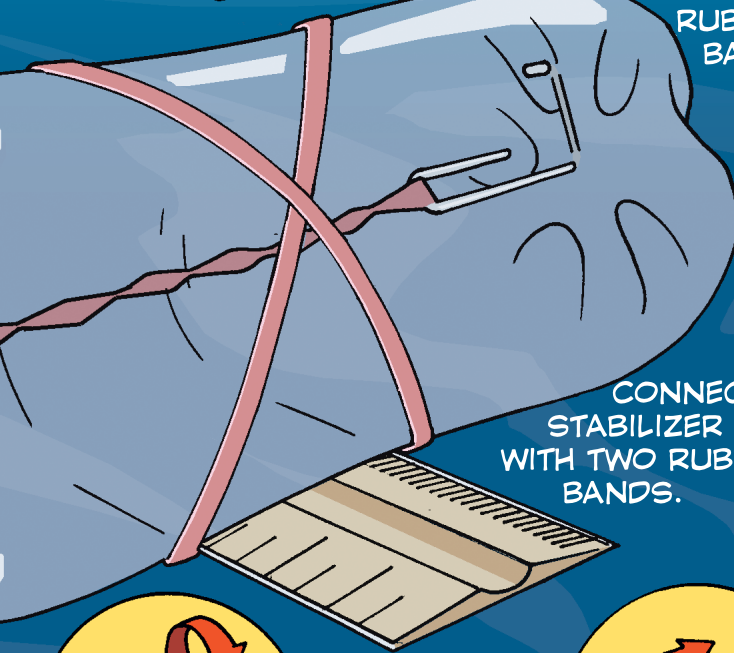


CUT THRU THE MIDDLE OF EACH HIGH AND LOW POINT.

DRILL HOLE IN BOTTLE CAP  
STRAIGHTEN PAPER CLIP, AND FEED THROUGH BOTTLE CAP THEN THRU PROPELLER CENTER HOLE. BEND A HOOK INTO SECOND HOLE.



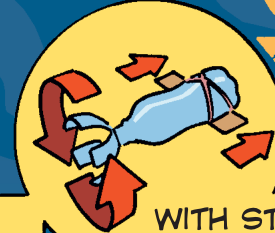
EXPERIMENT WITH DIFFERENT SIZE SUBS.  
DRILL A HOLE IN THE BOTTOM OF YOUR BOTTLE. USING CHOPSTICKS FEED A PAPERCLIP THRU.  
HOOK PAPERCLIP INTO SECOND HOLE.  
USE CHOPSTICKS TO HOOK RUBBER BAND.



CONNECT STABILIZER FINS WITH TWO RUBBER BANDS.



WITHOUT FINS, PROP AND BOTTLE BOTH SPIN IN OPPOSITE DIRECTIONS

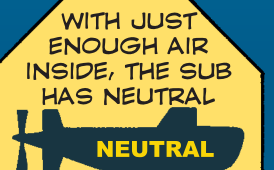


WITH STABILIZING FINS, PROP SPINS, BOTTLE MOVES FORWARD.

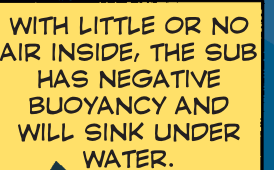
# BUOYANCY



WITH MORE OR MOSTLY AIR INSIDE, THE SUB HAS POSITIVE BUOYANCY AND WILL RISE UNDER WATER OR FLOAT ON TOP.



WITH JUST ENOUGH AIR INSIDE, THE SUB HAS NEUTRAL BUOYANCY AND WILL STAY LEVEL UNDER WATER



WITH LITTLE OR NO AIR INSIDE, THE SUB HAS NEGATIVE BUOYANCY AND WILL SINK UNDER WATER.

